



Carrington Stormwater Outfall 06: final report (HNZPTA authority 2021/777)

**report to
Heritage New Zealand Pouhere Taonga,
Beca Ltd,
The Ministry of Housing and Urban Development
and
Marutūāhu and Waiohua-Tāmaki Rōpū**


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Ella Ussher

Introduction

The Marutūāhu and Waiohua-Tāmaki Rōpū, working with the Ministry of Housing and Urban Development, have constructed a stormwater outfall on Lot 3 DP 314949, Lot 2 DP 531496, Lot 3 DP 144585 and Section 350 SO 434446 as part of the early works programme for the Carrington Residential Development. The outfall consists of an open swale drain beginning near the junction of Farm Road and the main access road through Unitec, and slopes downhill to the Te Auaunga / Oakley Creek walkway. The works are in the vicinity of one recorded site, a subsurface shell midden (R11/3313) recorded during the initial assessment of effects, and a number of both pre-European Māori and historic archaeological sites are recorded nearby on the banks of Te Auaunga Creek and in the grounds of the former Carrington Psychiatric Hospital, currently the Te Whare Wānanga o Wairaka / Unitec campus. Te Auaunga Creek is also a Category B Scheduled Historic Heritage Place in the Auckland Unitary Plan (Item 1583).

Beca, on behalf of the Rōpū, commissioned an archaeological assessment from CFG Heritage (Ussher 2021) and the Ministry subsequently applied to Heritage New Zealand Pouhere Taonga (HNZPT) for an archaeological authority to modify or destroy R11/3313 and any other potential archaeological deposits within the scope of works under section 44 of the Heritage New Zealand Pouhere Taonga Act 2014. Authority 2021/777 was granted on 21 July 2021. Earthworks commenced 13 August 2021 and were completed on 23 November 2021. Archaeological monitoring was undertaken by Ella Ussher, Brendan Kneebone and Matthew Campbell of CFG Heritage Ltd.

Background

The Unitec campus is within the Auckland Volcanic field, a well-preserved volcanic landform covering about 100 km² of the Auckland urban area. It forms a gently rolling surface with numerous volcanic cones rising above it. Lava caves and tunnels are common features within some of the Auckland flows (Edbrooke 2001: 8).

The campus is located within the Western Springs catchment, covering approximately 7.5 x 3 km. The highest points in the catchment are Maungawhau / Mt Eden, Owairaka / Mt Albert and Te Tātua-a-Riukiuta / Three Kings, from which water feeds down the valley and creek systems in a north westerly direction and discharges at the Meola reef (Berry 2007: 29). Much of this area was modified through Public Works drainage programmes of the early 20th century, especially areas of Te Auaunga Creek during the Depression era of the 1930s.

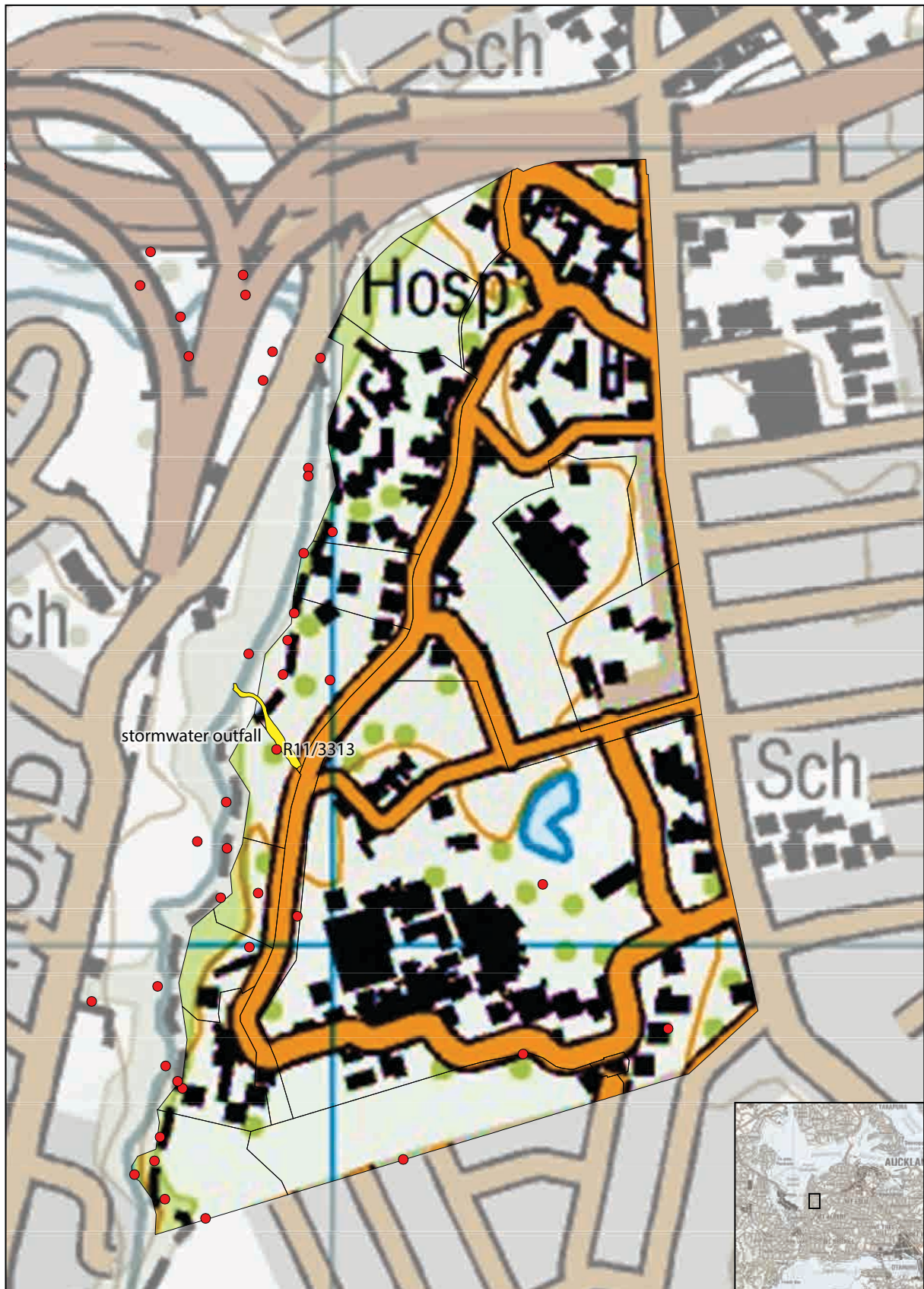


Figure 1. Location of the Stormwater 06 outfall corridor and recorded archaeological sites in the area.

Pre-European Māori

Pre-European Māori settlement of the area was centred primarily around the pā at Ōwairaka and Te Whau / Blockhouse Bay (Oates 1994). Settlement and land use concentrated on the coastal margins of the Waitematā Harbour, the Whau River and Te Auaunga Creek. The Whau River was an important feature for local Māori, and was used as a portage and food source. This portage, linking the Waitematā and Manukau harbours, worked as part of a larger network of portages in operation around northwest Auckland (Hooker 1997). It was also a seasonal hunting ground for the migratory bar-tailed godwit which, heavy with fat for their migration to Siberia, were only able to gain enough altitude to skim over the trees of the portage where they would be ambushed and struck down by hunters hiding in the canopy (Sewell 1984: 3).

In the Unitec campus is a spring fed stream that is known as Te Wai Inu Roa o Wairaka, Te Puna Waiora o Wairaka and Te Waimimi o Wairaka (among other names) and would have been a vital natural resource. Early Māori occupants of the Ōwairaka area utilised Te Auaunga Creek and its catchment to support settlement, and gathered fresh water, crayfish, eels, and shellfish from the wider area. Abundant crops of harakeke and raupō around the waterway were commonly used to make clothing, roofing and matting, and stands of native timber, particularly karaka, facilitated the construction of whare, storage houses and defensive palisading (Matthews and Matthews 2009).

Historic period settlement in Ōwairaka / Mt Albert

European settlement spread outwards from central Auckland from 1840 onwards, with settlement initially focussed on the waterways and coastlines. Farming was undertaken on the rich soils, and various industries including pottery and brick making, flour milling and tanning took place along the rivers (Farley and Clough 2016).

In 1859 John Thomas, a flour miller from Devon, bought 8 acres of land along Te Auaunga Creek and secured the water rights up to the waterfall (Farley et al. 2017). Thomas established a flour mill on the south side of the Te Auaunga Creek, which traded as the Star Mills although it was generally known as Thomas's Mill. In 1879 the Garrett Brothers purchased the property and established a tannery (Campbell and Holmes 2008).

Carrington Psychiatric Hospital

The purpose-built Whau Lunatic Asylum, later the Carrington Psychiatric Hospital, was constructed in 1866 on the neighbouring property across Te Auaunga Creek due to overcrowding at previous facilities at Auckland Hospital (*New Zealand Herald*, 6 September 1866: 3). Later in 1879 the Crown purchased further lots from Joseph Howard for the sum of £4200 (Deeds Index A2/129-131, Archives New Zealand) for the purpose of establishing a farm to feed the patients and provide work for them. These properties and the hospital were recorded on SO 1992 from 1879 (Figure 2). Many of the farm buildings can still be seen in aerial photographs from 1940 of the hospital grounds, including the piggery built in the 1880s, and swill store to the south of the area of proposed works. The Auxilliary Asylum building was established in 1884 due to a need for greater accommodation capacity for patients, but later destroyed by fire in 1894 (*Auckland Star*, 21 December 1894:4). A replacement building, Auxiliary No.1 (current Building 048), was built in 1896 (*Appendices to the Journal of the House of Representatives [AJHR]*, 1897 H7: 2), later becoming known as Oakleigh Hall in the 1920s and was used as a 'parole villa' for 150 men (*AJHR*, 1926 H7: 9). A number of other buildings were constructed on the hospital grounds, including workshops (1880s), accommodation for

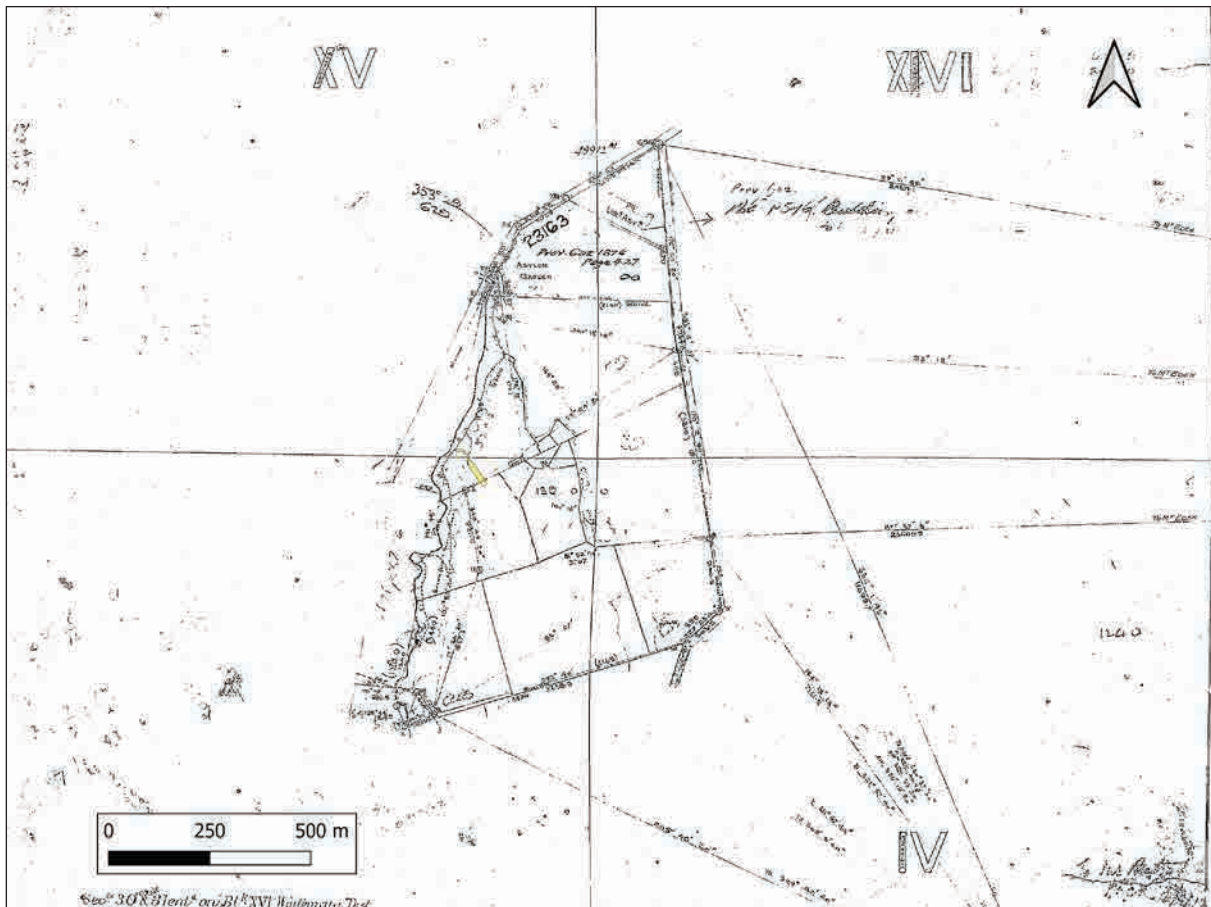


Figure 2. SO 1922 from 1879 showing location of Stormwater 06 Outfall works in relation to Hospital buildings and stone walls when land was purchased from Howard for the Asylum farm.

the Medical Superintendent in 1909 (later used to house female patients) and 1930 (Penman House), Auxiliary No.2 (1913) and Auxiliary No.3 (1915).

Water supply for the purposes of cooking, bathing and cleaning was primarily obtained from two sources; a large number of cisterns in the roof structure of the building, and from a well (*New Zealander*, 1 December 1865: 3). The supply of water appears to have been satisfactory for some years however it was noted that the 5 acres of land near the Te Auaunga Creek had a good spring of water, and it would be advantageous to purchase the land (*AJHR*, 1883 H3: 6). A reservoir and pumping-station was completed in 1897 (*AJHR*, 1898 H7: 5), however by 1900 it became apparent that the rapidly expanding Auckland region's water supply was causing concern and the Asylum agreed to pump excess water to Western Springs (*New Zealand Herald*, 23 February 1900: 3). Later in 1904 a larger pumping station was built, which is still standing, to the northeast of the proposed area of works to cater for greater demand for water supply. Ultimately in early 1909 the Mount Albert Road Board sought to take over control of the springs from the Public Works Department in exchange for supplying water to the Asylum at no more than £150 (*Auckland Star*, 6 January 1909: 9), which was agreed to in 1910.

Archaeological background

Several archaeological reports have been completed for the wider area around Waterview, several of which have focused on the Te Auaunga Creek surrounds. Several sur-

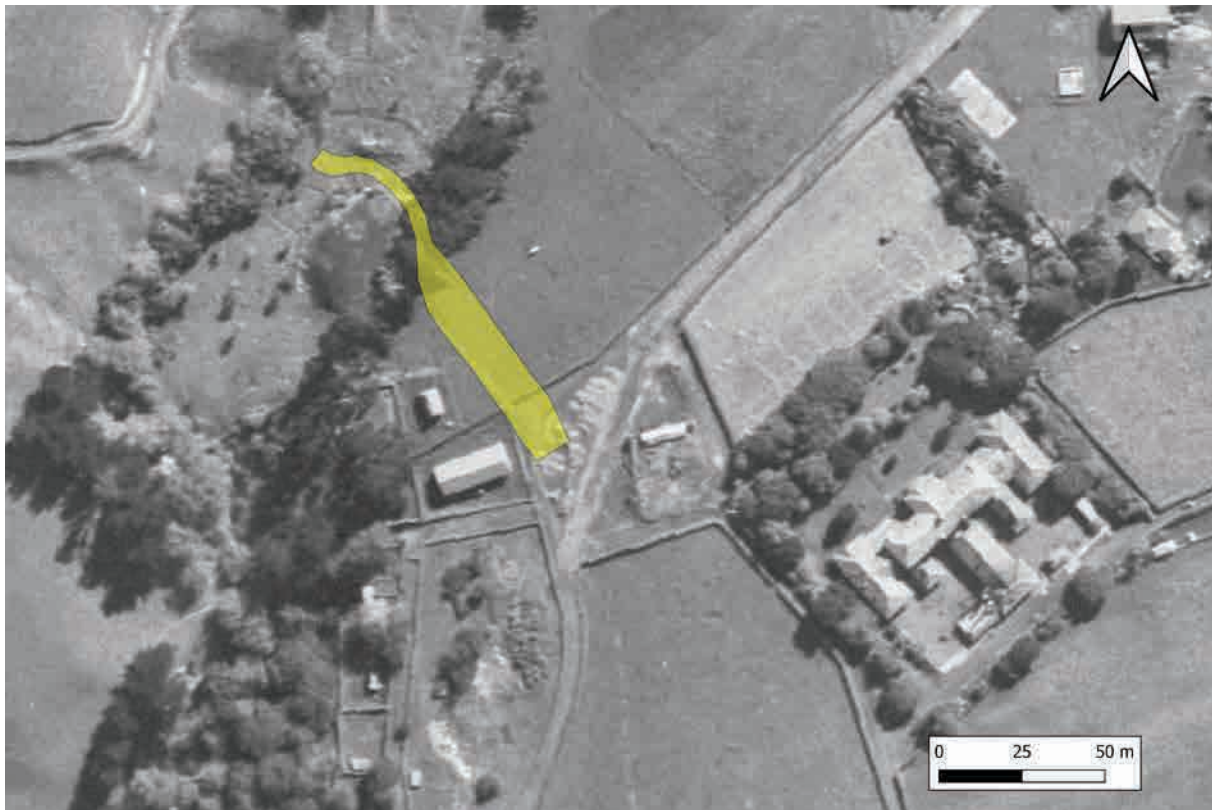


Figure 3. 1940 aerial photograph showing the location of Carrington Hospital and the associated farm buildings, including 1880s piggery, in relation to the stormwater outfall corridor (yellow).

veys have been conducted along this esplanade previously, with the majority of sites recorded in 2003 and one in 1995.

In 1987 Fredericksen conducted an archaeological survey in the Unitec campus (Fredericksen 1987). This involved the survey of 2 relatively small areas: Blocks A and B. A stone wall was identified as pre-1900, recorded as R11/2980. Block B was found to have a terrace, 2 depressions, a European stone alignment and a shell scatter. One of the depressions appeared to be natural, the other had concrete chunks in the fill. The stone alignment was aligned with the fence, and he concluded that this was probably modern and associated with building the adjacent road. The terrace had mixed soils probably from pre-European Māori gardening. The shell scatter was about 2m x 2m and was archaeological, recorded as R11/1387.

Between 2000 and 2015 Druskovich completed a number of field surveys and monitoring works near Te Auaunga Creek. Several surveys were conducted as part of preliminary investigations for the Waterview Connection project (Druskovich 2010), several bridge replacements were monitored along the Oakley Creek Walkway (Druskovich 2009b), works associated with the upgrade of facilities around the Te Auaunga Creek waterfall were monitored (Druskovich 2011), and community planting as part of the Revegetation Programme for the Oakley Creek Walkway was monitored (Druskovich 2015). During these, a number of new sites were recorded within 200 m of the project area, including a possible mill (R11/2205), several drystone retaining walls (R11/2473, R11/2500), a drystone walled race (R11/2205) and several bridges and a drystone wall (R11/2373). In addition, site R11/524 was impacted to a minor extent by the planting, and a midden sample was subsequently taken for analysis and radiocarbon dated to the mid-15th to mid-17th centuries (Druskovich 2015).

In 2010 Clough et al. completed an assessment of effects as part of the Waterview Connection project. Later in 2012 Shakles et al. undertook a field survey in the Te Auaunga Creek / Waterview area as part of the Central Interceptor project but no new archaeological sites were recorded during the survey. Clough and Burnett completed an archaeological assessment of the Waterview Shared Path proposal in 2015. The final report for the Waterview Shared Path was completed in 2017 (Farley et al. 2017). The affected sites were a drystone wall (R11/2979) and a midden (R11/1387), and excavations revealed deep deposits connected with the demolition of hospital and farm buildings, rubbish disposal on the banks above Te Auaunga Creek, as well as intact pre-European Māori occupation on the flats above. In 2015 Foster carried out an archaeological assessment of the Unitec grounds south of Farm Road. This identified a number of archaeological sites in that area.

Summary of assessment

There were no previously recorded archaeological sites in the extent of works for the Stormwater 06 outfall prior to the initial assessment of effects carried out by Ella Ussher (2021). During the field visit for the assessment a test pit (TP1) was dug just to the southwest of the works corridor which contained a deposit of shell midden, charcoal and fire-cracked rocks (FCR) 300 mm below the surface. The test pit showed three distinct layers above the midden deposit. Below 100 mm of topsoil was a further 100 mm of mixed grey clay, gravel and early to mid-20th century rubbish. Under this was 100 mm of very compact dark silty soil with gravel. The extent of the shell midden could not be determined by probing due to the presence of dense gravel in the layers above, and the site was subsequently recorded as R11/3313 in the SRS.

Construction methodology

The Stormwater 06 Outfall works were carried out in a series of stages to enable access for heavy machinery, the removal of material to an on-site store location nearby and to meet environmental conditions outlined in the resource consent granted by Auckland Council. Works were initially carried out on the flat area to the west of the main Unitec access road, before moving down the slope towards Te Auaunga Creek. Due to this methodology a number of archaeological features had to be recorded in stages as they were gradually exposed and then later destroyed or buried.

Results

Twelve archaeological features or deposits were recorded (Figure 4). These included a shell midden (Feature 2), two firescoops (Features 3 and 4), a much larger and deeper fire feature (Feature 11) and associated rake-out (Feature 12), recorded as part of R11/3313. A further seven historic features were recorded, including a brick-drain with access point (Feature 1), a brick chimney or incinerator (Feature 5), a brick road or driveway (Feature 7), a stone-lined drain (Feature 8), basalt stone kerbing (Feature 6), and two ceramic drainage pipes (Features 9 and 10) were recorded as R11/3376. No features were identified on the slope above Te Auaunga Creek. The slope appears to have been used to deposit burned and unburned rubbish from at least the late 19th century up to the 1950s (based on material culture), before later being covered in material from the demolition of the nearby piggery complex in the 1960s. This closely resembles stratigraphy noted during archaeological monitoring by Farley et al. (2017) for the Waterview Shared Path 100 m to the southwest.



Figure 4. All features recorded during stormwater outfall 06 works.

R11/3313

Feature 2, midden

A dispersed shell midden was identified in the main swale cut. The midden was around 10 m long by at least 2 m wide and 200 mm thick, but had been badly disturbed by the planting of trees in the area. The deposit was located below 200 mm of topsoil and mixed fill. At first inspection it was composed primarily of mudsnails (*Amphibola crenata*), pipi (*Paphies australis*) and tuangi (*Austrovenus stutchburyi*).

Features 3 and 4, firescoops

There were two shallow firescoops around 8 m to the north-west of the midden, at a depth of 200 mm below topsoil. The edges of both were not easily defined due to root disturbance but they were around 600 mm in diameter by 50 mm deep (Feature 3), and 300 mm in diameter by 50 mm deep respectively (Feature 4). Both contained charcoal and shell, with some fire-cracked rocks also in Feature 4.

Feature 11, large fire feature / hāngi

A larger and deeper fire feature and associated rake-out (Feature 12) (Figure 7 and Figure 9) were recorded at a similar depth below a tree stump 7 m to the northwest of Features 3 and 4. Half of the feature had been obscured by the stump and roots, but the remaining half was 1.2 m long by 700 mm wide, with square cut sides that slope from 200 mm to a base at 400 mm. The pit fill was primarily dense shell dominated by mud snails and

tuangi, with some rock oyster (*Saccostrea glomerata*), pipi and charcoal to 200 mm with small FCR. The bottom 200 mm had dispersed shell and charcoal in a loose mid-brown silty clay, with a concentration of FCR at the base. The feature was cut into sterile yellow clay subsoil.

Feature 12, rake-out from Feature 11

Rake-out from Feature 11 was spread around 2 m to the northwest, and consisted of fragmented shell, ash and a high concentration of charcoal. Feature 12 was exposed after the area around Feature 11 was cleared to provide access for the removal of the tree stump. The area of rake-out was relatively shallow, only a maximum of 50 mm thick. Root disturbance from the tree made the edges of the feature difficult to define.

R11/3376

Feature 1, brick drain

A 70 m long brick drain was uncovered in the main swale cut, and then exposed at other locations across the entire area of works on the flat, running southeast to northwest from the main Unitec access road to the banks of Te Auaunga Creek. Parts of the drain were constructed adjacent to very large (over 1 m) volcanic stone boulders. These seemed to dictate its direction in these areas and indicate that they were not able to be moved during construction. The drain was a maximum of 5 courses high, with some stone used in places, and covered with sheet metal across most of its extent. A manhole or access point into the drain was recorded close to the location of Features 5 and 6. This measured 900 x 700 mm in plan and at least 1 m from the top of the manhole to the base of the drain. The sides of the manhole

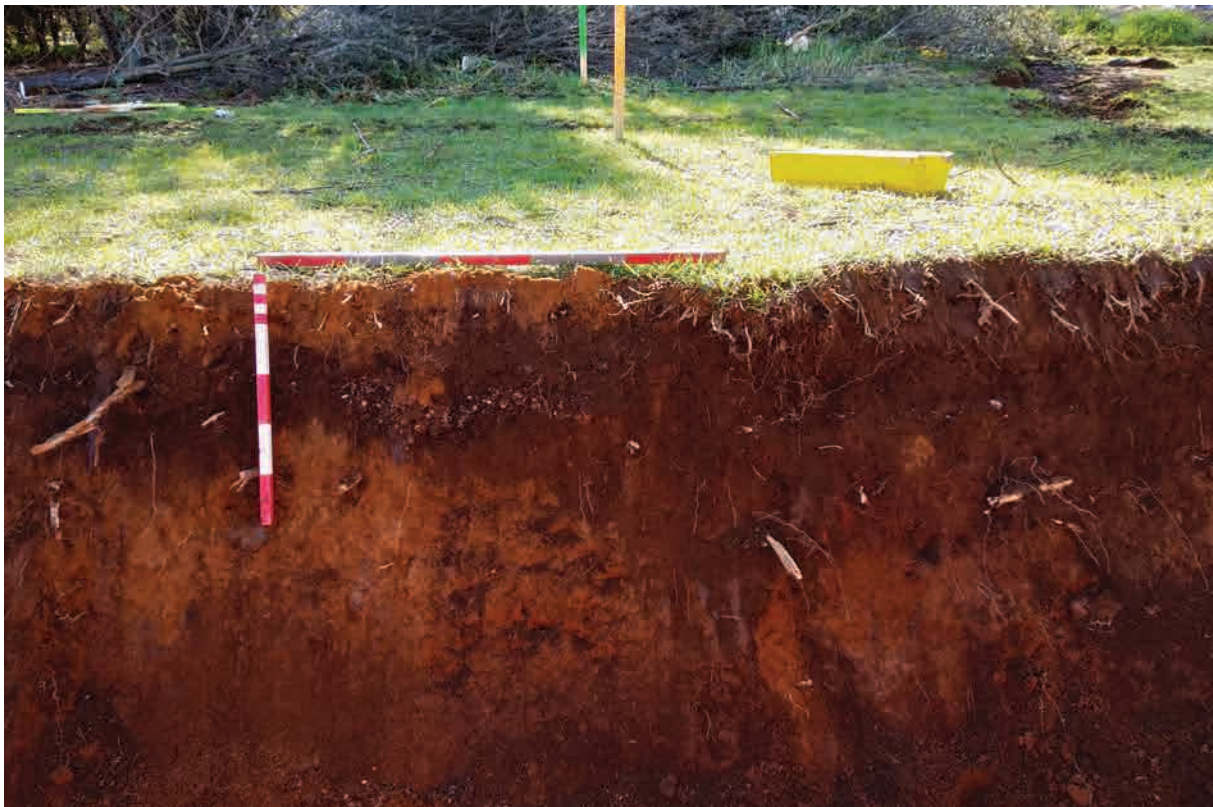


Figure 5. Feature 2, dispersed shell midden (scales = 1 m and 500 mm).

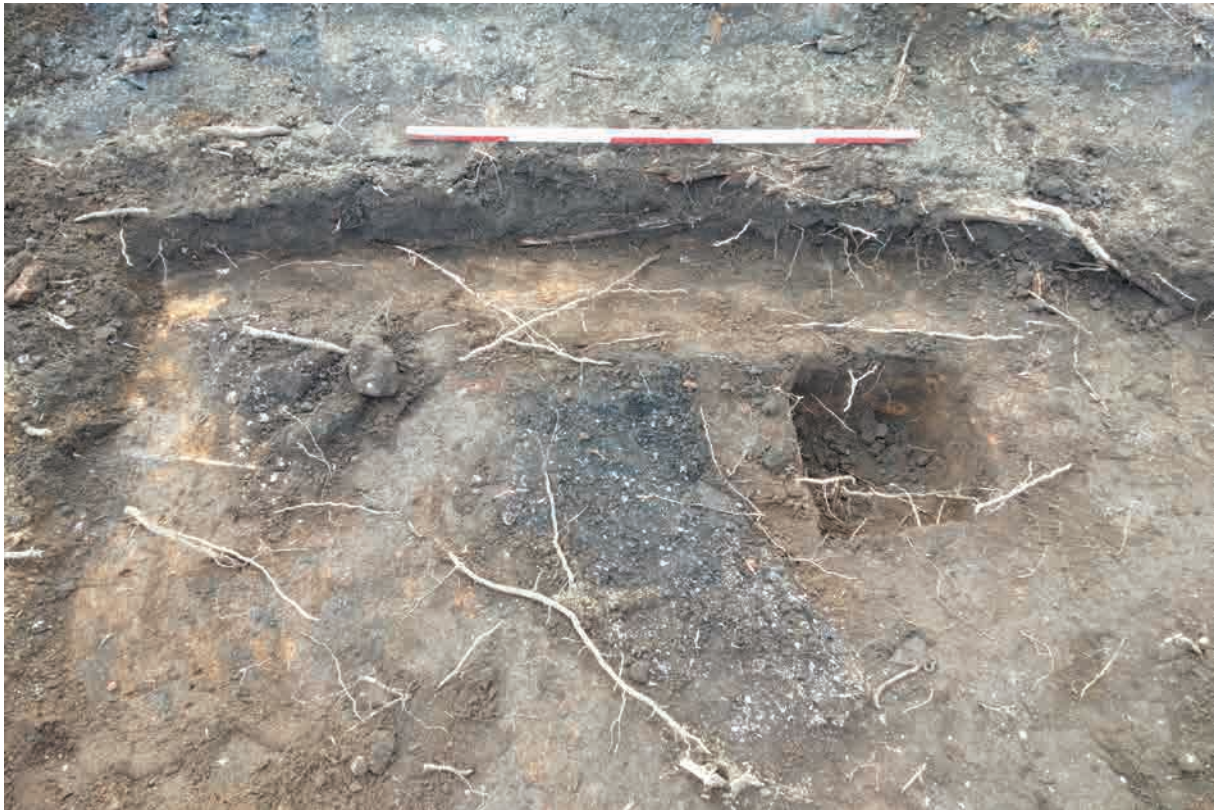


Figure 6. Feature 3, excavated in half-section, and Feature 4, firescoops (scale = 1 m).



Figure 7. Feature 11, large fire feature, excavated in half-section (scales = 1 m and 500 mm).



Figure 8. Cross-section of Feature 11 (scale = 1 m).



Figure 9. Feature 12, rake-out from Feature 11 (scale = 1 m).



Figure 10. Feature 1, brick drain, and Feature 10, ceramic drainage pipe (scale = 1 m).



Figure 11. Profile view of section of Features 1 and 10 (scale = 1 m).

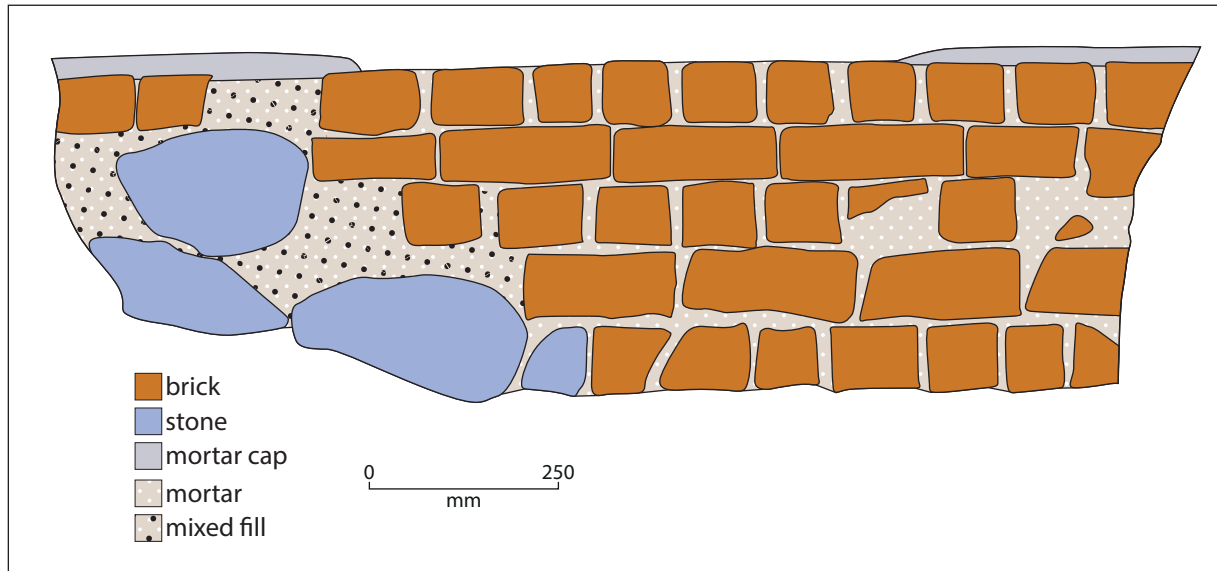


Figure 12. Profile of Feature 1 showing brick courses and stone inclusions.



Figure 13. Detail of Feature 1 showing brick construction (scale = 1 m).



Figure 14. Truncated end of Feature 1 with Feature 10 continuing down to Te Auaunga Creek (scale = 1 m).

were 2 courses wide, the same as the drain itself. Many bricks were stamped with “W HUNT AUCKLAND” west of this manhole, and the section east of the manhole had “J J CRAIG AUCKLAND”, “AVONDALE BRICK AND POTTERY CO LTD” and “DOLPHIN AND CO ARCH HILL.” The eastern end of the drain was not located as it appears that the drain continues towards the existing Unitec access road and has been damaged by the demolition of the farm buildings in the 1970s, however the western extent was found, truncated at the top of the bank above Te Auaunga Creek, possibly by modification of this area for the dumping of rubbish from the hospital. Feature 10 continued downslope towards the creek.

Feature 5, sump

A square feature constructed from brick with a combination of ash, charcoal, slag and sand at the base was identified as a sump. The top of the feature had clearly been truncated, with only 6 courses of bricks remaining. The sides of the structure were two courses wide. Ceramic drain and stone-lined drains, Features 8 and 9, came together close to the base of Feature 5 on its south-eastern side, with Feature 9 entering Feature 5. Ceramic drain Feature 10 starts from the base of Feature 5 on its north-western side. The base courses of Feature 5 appeared to have been constructed around the ceramic drain pipes of Features 9 and 10. The base was made of coarse mortar that sloped towards a channel connecting the pipes from Features 9 and 10.



Figure 15. Access point to Feature 1, brick drain, next to the base of feature 5, brick chimney or incinerator, and Feature 6, basalt stone kerbing (scale = 1 m).

Feature 6, basalt stone kerbing

A 4 m long section of basalt stone kerbing was located to the west of Features 1 and 5. The kerb stones were of varying sizes but generally around 300 mm long x 150–200 mm wide, with one face flattened. These were not arranged in a straight line, but instead slightly curved. It is possible that these formed the entranceway for access onto the brick road or driveway (Feature 7) from the main farm road that ran south from the main hospital building.

Feature 7, brick road or driveway

A 44 m long x 3 m wide brick paved road or driveway was recorded on the western side of the outfall in roughly the same alignment as the new outfall swale. Makers marks of bricks within this feature included “J J CRAIG”, “DOLPHIN AND CO ARCH HILL”, “AUCKLAND BRICK AND POTTERY CO” and “CARDER.” Some compacted large gravel that was part of the paving was also visible in the road in the eastern and western extents of the feature. Both ends of Feature 7 appeared to have been truncated by the demolition of the farm piggery buildings and movement of this material. Redeposited shell midden was noted under the bricks in places after removal of Feature 7. Due to the position of this feature, it is likely that at one point it connected the main asylum farm road to the track that crossed onto the western side of Te Auaunga Creek at the bridge recorded as R11/2373.

Feature 8, stone-lined drain

A stone-lined drain (Feature 8) with some broken larger ceramic pipe sections in the fill stamped with the mark “CARDER BROS PONSONBY” ran southeast from Feature 5. The cut for the drain was 1 m wide, with loose gravel and silt at the top of the trench, then a layer of very degraded metal below this covered two rows of large stones. In the gap between the stones there was 20 mm of compacted ash below which was 200 mm of compacted mid brown silt and then a thin lens of loose scoria on top of the clay base. The full extent of this feature was not exposed, but likely runs further east towards the Unitec access road. The trench for this feature was cut into the sterile clay subsoil and under a layer of redeposited clay, above which was a layer of the farm demolition material that appears to have been spread over a large area in the eastern extent of the 06 Outfall works during the 1960s or 70s.

Feature 9, ceramic drainage pipe

Feature 9 was a 200 mm diameter glazed ceramic drainage pipe that ran in a northwest direction into the sump (Feature 5) from the edge of the batter for the Outfall 06 works and was also stamped “ARCHIBALD BROS AVONDALE.” Feature 9 was cut into the trench for the stone-lined drain (Feature 8) and would have been installed later. The sump (Feature 5) appears to have been constructed around the ceramic drainage pipe of Feature 9. As with the stone-lined drain for Feature 8, the trench for the drain pipe was cut into the sterile clay subsoil and below the farm demolition layer.



Figure 16. Test trench cut into Feature 8, stone-lined drain (scale = 1 m).



Figure 17. Profile of the Feature 8 trench for under 1970s demolition rubble (scale = 1 m).



Figure 18. Bases of Features 1, 5, 10, 9 and 8, looking east after excavation.

Feature 10, ceramic drainage pipe

A 150 mm diameter ceramic glazed drainage pipe stamped “ARCHIBALD BROS AVONDALE”, was recorded running parallel to Feature 1 for at least 56 m, but is probably a separate and later instalment. Feature 10 started at the base of the sump (Feature 5) before running northwest towards Te Auaunga Creek, and had stones around 300–400 mm in diameter on its northern side to hold it in place. The start and end of Feature 10 were not located in the current works. A slot trench dug through the cut for Feature 10 at the point where the adjacent brick drain (Feature 1) ended, showed that the ceramic pipe and stones were placed at the base of the cut next to the brick drain and then the trench had been backfilled with a mid-brown silty material along with more large stone, metal sheets, broken glass, ceramics and several clay smoking pipes.



Figure 19. Section of Feature 7, brick paved road or driveway, looking west (scale = 1 m).



Figure 20. Detail looking south at cleared section of Feature 7 (scale = 1 m).

Analysis

R11/3313

Midden analysis

Midden was analysed by Tamara Craigen of CFG Heritage. The midden was floated using bucket flotation to remove light materials such as charcoal, and the heavy residue was then washed in a 6 mm wet sieve before dried and sorted to primary classes (shell, stone and heavy charcoal – no bone was recovered). Shell was analysed using conventional methods with species identification based on Morley (2004). Shell that did not have any diagnostic portions was classified as residue. The full 10 litre bulk sample was analysed from Feature 11, while the remaining 10 L samples were subsampled. Half of the samples from Features 2, 4 and 12 were analysed, and a quarter from Feature 3. The decision to subsample was made due to time constraints and the fragmented nature of the shell in these samples. The results are summarised in Table 1.

A comparison of diagnostic shell to non-diagnostic fragments by weight shows that most of the shell in Features 2, 3 and 12 were crushed and fragmented beyond identification (Figure 21). This is likely the result of post-depositional processes such as trampling or redeposition. Additionally, the shell from Feature 12 was mostly burned which supports the interpretation that this feature was rake-out from the nearby fire feature (Feature 11). The shellfish in samples from Features 2, 3 and 12 were all highly fragmented, likely the result of post-depositional processes such as trampling or redeposition, and material from Feature 12 was also burned. Features 3 and 11 both contained a combination of whole and fragmented shell

There was very low species diversity in Features 2, 3, 4 and 12, all of which only contained 2–4 species. Feature 11 had a greater range of shellfish species, with 7 identified, although this was the only sample that was fully analysed and not sub-sampled. In all samples two species were dominant: tuangi (*Austrovenus stutchburyi*) and tītiko (*Amphibola crenata*). These are both intertidal soft shore species (Morley 2004) that would have been easily accessible within the nearby Waitemata Harbour and the inlet near the mouth of Te Auaunga Creek. Pipi, koeti (*Zeacumatus intulutus*), kawari/ speckled whelk and tio reperepe/ rock oysters also live within this habitat. Kawari feeds on tunagi, pipi and tītiko, while tio reperepe grows on intertidal rocky exposures around the harbour edges (Morley 2004). In contrast, tuatua and ataata are respectively primarily open shore and rocky species that would have been sourced closer to the entrance to the harbour.

Table 1. Summary of shellfish species in samples from R11/3313.

	F2	F3	F4	F11	F12
Species	MNI	MNI	MNI	MNI	MNI
Titiko (mudsnail, <i>Amphibola crenata</i>)	5	46	99	561	24
Koeti (horn snail, <i>Zeacumatus lulentus</i>)				7	
Tuatua (<i>Paphies subtriangulata</i>)				1	
Tuangi (cockle, <i>Austrovenus stutchburyi</i>)	114	47	40	879	128
Pipi (<i>Paphies australis</i>)	1			49	
Kawari (mud whelk, <i>Cominella glandiformis</i>)				1	1
Tio reperepe (rock oyster, <i>Saccostrea glomerata</i>)				1	
Ataata (cat’s eye, <i>Lunella smaragda</i>)					1
Total	120	93	139	1499	155

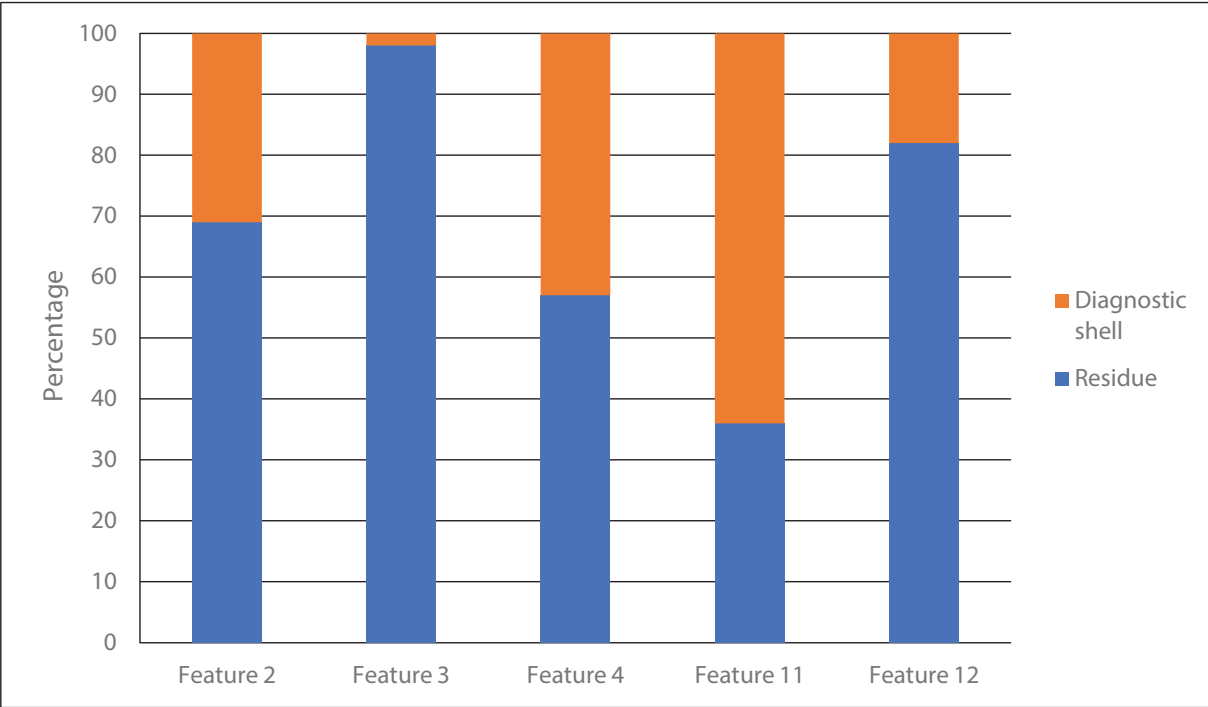


Figure 21. Proportions of diagnostic shell and non-diagnostic residue in each sample, showing the extent of shell crushing and fragmentation

Charcoal analysis

Charcoal was analysed by Ella Ussher of CFG Heritage following the methodology outlined in Chabal et al. (1999), Théry-Parisot et al. (2010) and Dotte-Sarout et al. (2015), although the sample sizes were lower (50 fragments) than recommended (200–400 fragments).

Charcoal from both the flotation and heavy residue of each bulk sample was analysed. These included one shell midden (Feature 2), two firescoops (Features 3 and 4), one large fire feature / hāngi (Feature 11) and associated rake out (Feature 12).

The number of species in all of these features was relatively high, ranging from 5 to 9, indicating that a range of species were targeted for collection and use as firewood. Firewood selection was targeting mostly easy burning shrubs or small trees (<https://rauropiwhakaoranga.landcareresearch.co.nz/> accessed 11/8/22) such as manuka (*Leptospermum scoparium*), hebe and pate, supplemented by some larger trees from the coastal forest surrounding the Waitemata Harbour such as pohutukawa and rewarewa. It is interesting to note that a grab sample taken from the base of Feature 11 was identified as pūriri, along with a fragment of manuka. This is the only sample that included pūriri, another broad-leaved canopy species. Conifer was only identified in the areas of midden (Feature 2) and rake out (Feature 12).

It is interesting to note that according to Māori tradition, rewarewa is difficult to burn, but charcoal produced from the wood, once ignited, retains the heat for a long time and was used by canoe builders to help them hollow out the interior of logs (Best 1929: 266). It was also not usually used for cooking and its inclusion in Feature 11 is unusual. The presence of vegetative storage parenchyma within Features 4 and 12 is evidence that roots and tubers such as taro or kūmara were being processed in the area around site R11/3313.

Table 2. Species identification of charcoal from site R11/3313

Species	Type	F2	F3	F4	F11 Fill	F11 Base	F12	Total %
Bracken (<i>Pteridium esculentum</i>)	Monocot		2		1			1.2
Manuka (<i>Leptospermum scoparium</i>)		26	27	5	7	1	5	
Raurekau (<i>Coprosma australis</i>)		6						
Mapou (<i>Myrcine australis</i>)		1						
Hebe (<i>Hebe</i> sp.)	Small trees and shrubs	1	13	2	21		16	63.5
Pate (<i>Scheffleria digitata</i>)			1	3	6		19	
Kowhai (<i>Sophora</i> sp.)					1			
Ake ake (<i>Olearia</i> sp.)					1			
Rewarewa (<i>Knightia excelsa</i>)	Broad-leaved canopy speceis				4			9.4
Puriri (<i>Vitex lucens</i>)						3		
Pohutukawa (<i>Metrosideros excelsa</i>)			4	7		4	2	
Conifer (<i>Podocarpus</i> sp.)	Conifer	8					2	4
Parenchyma	Other			4			2	2.4
Unidentified		4		36	5		4	19.6
Total		50	50	50	50	5	50	

Radiocarbon dating

Three samples of charcoal from Features 2, 3 and 11 were sent to the University of Waikato Radiocarbon Dating Laboratory. These were all samples of charcoal from short-lived species: *Hebe* sp. (Features 3 and 11) and *Coprosma australis* (Feature 2). These all returned similar ranges from the late 17th to the early 20th century, but with the highest probabilities being in the 19th century (Figure 22, Table 3). Considering that the Ngāpuhi raids were occurring in the early 1820s and the area was widely evacuated, and the documented Pākeha occupation of the property from the 1860s onwards, it is most likely that site R11/3313 was occupied prior to 1820.

Feature	Lab no.	CRA BP	Cal AD 68%	Cal AD 95%
Feature 2	Wk 54560	164 ± 19	1690–1730 (20.8%) 1800–1820 (2.9%) 1830–1890 (27.5%) 1920–modern (17.1%)	1670–1740 (29.4%) 1800–1900 (47.7%) 1910–modern (18.4%)
Feature 3	Wk 54559	148 ± 17	1690–1730 (15.8%) 1810–1820 (4.6%) 1830–1900 (32.7%) 1920 modern (15.2%)	1690–1730 (20.8%) 1800–modern (74.6%)
Feature 11	Wk 54558	148 ± 18	1690–1730 (15.4%) 1810–1820 (4.5%) 1830–1900 (33.5%) 1920–modern (14.9%)	1690–1730 (20.7%) 1800–modern (74.8%)

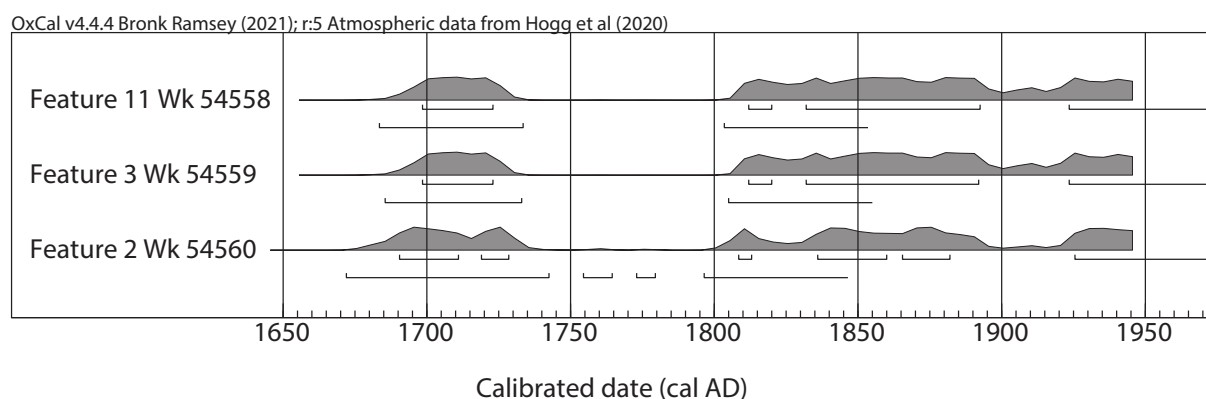


Figure 22. Multiplot showing radiocarbon dates from Features 2, 3 and 11.

R11/3376

Historic artefact analysis

Historic artefacts were analysed by Jacqueline Craig of CFG Heritage. The artefacts were washed and analysed by bag, corresponding to different features and contexts. They were divided into ceramics, glass, metal and brick/pipe. Undiagnostic fragments of white ceramic or bottle glass were grouped by colour and recorded in bulk. The diagnostic items were recorded individually. All entries have a number of identified specimens (NISP) and minimum number of vessels (MNV) recorded, although in a fragmentary assemblage such as this, the MNV will not be particularly accurate. The ceramic maker's marks were identified using Godden (1964).

Three main material types were identified in the assemblage, ceramics, glass and brick/pipe, representing a mix of both domestic and pharmaceutical products. It was noted that there was no clear difference between the different contexts either by artefact type or dates, aside from the bricks, so the assemblage was looked at as a whole.

Ceramics

The ceramics were domestic in nature, representing both food preparation and consumption, as well as tea wares. There were also a few clay tobacco pipe fragments, representing the personal nature of the occupation. Most of the fragments of vessels were plain white earthenware and undiagnostic, but there were a few that were more informative. Several fragments were edge banded tableware, deriving from one casserole lid and the rest were plates (Figure 23s–v). There were also several lightly moulded items, including two white fragments from a chamber pot (Figure 23r) and a vase, a mixing bowl that had the classic yellowy buff exterior and cream interior (Figure 23x), and a small container that combined moulding and handpainting with blue on raised beading and ovals and hairlines around the rim (Figure 23p). Nine different types of transferwares were identified within the assemblage on fragments from plates and serving dishes (Figure 23h–o). With the exception of a few, the patterns are suggestive of very late 19th or early 20th century styles. A few fragments of blue, brown and green transferware patterns are more suggestive of the later 19th century but may represent older vessels or heirlooms. Although they were present in the late 19th century, decal patterns became most popular in the early 20th century (Brooks 2005: 36). The few base marks are all on plain white fragments and all fall across the turn of last century or firmly in the 20th century. These included: “GRINDLEY & CO / ENGLAND” from 1891–1914 (Figure 23d); “...BROS / ...LAND and ROYAL IRO[NSTONE] / crest” made by Johnson Brothers from 1883–1913 (Figure 23c and e); “CZECHO-SLOVAKIA / W” made by Porzellanfabrik Wehinger & Co. A.G. from c.1920 (Figure 23f); “NORTH STAFFORDSHIRE / POTTERY CO LTD / GLOBE POTTERY / G V I r / 1945” from 1945–52 (Figure 23a). There were fragments of at least 3 clay tobacco pipes found in two different contexts but had no identifying marks (Figure 23g). Overall, there was no particular context that contained only older material, it appears to be spread across the assemblage and suggests either deposition of older, conserved, material with newer items, or disturbed contexts.

Glass

The majority of the assemblage were either pharmacy-style or toiletry type bottles, followed by alcohol and soft drink/aerated water bottles. These were all from domestic (alcohol or aerated drinks and toiletries) or pharmaceutical settings. Aside from the few alcohol bottles, the rest of the identified glass is fairly firmly dated to the 20th century, and includes items like a Coca Cola bottle that post-date 1945.



Figure 23. Ceramics from Carrington Early Works. a, North Staffordshire Pottery Co. Ltd teacup basemark; b, unknown basemark; c & e, Johnson Bros. basemarks; d, Grindley & Co. basemark; f, Porzellanfabrik Wehinger & Co. A.G. c. teacup basemark; g, assorted clay pipes; h, CAR15 plate; i, CAR02 plate; j, CAR13 plate; k, CAR17 platter; l, CAR14 plate; m, CAR12 plate; n, CAR16 plate; o, CAR01 small bowl; p, CAR07 container; q, storage jar rim; r, CAR08 chamber pot; s, CAR04 plate; t, CAR05; u, CAR06 plate; v, CAR03 lid; w, small serving bowl; x, CAR09 mixing bowl; y, teapot lid.

The alcohol bottles were the oldest types found in the assemblage, with three dip-moulded bottles, and just one machine-made bottle. There was one case gin finish found, of a type that dates between 1880 and 1930, and one hand applied champagne finish. These were commonly used on the champagne-style bottles imported into New Zealand in vast numbers in the 1850s and 60s and then repurposed and imported as beer bottles until 1910 when the crown seal became popular (Tasker 1989: 43–47). The hand-applied finish suggests an earlier date (Figure 24e,f). There was one clear body fragment with “...TBURY’S LTD. / REGD / ...O” embossed on it but this manufacturer remains unidentified (Figure 24b). Two Codd

patent aerated water bottles were found, one of which had AUCKLAND embossed around the base (Figure 24a,d). Codd bottles were used in New Zealand from 1880 to 1910 when crown seals became the finish of choice (Tasker 1989). There was also a Coca Cola bottle with “COCA COLA / TRADEMARK REGISTERED / CARBONATED BEVERAGE” embossed on one side and on the other “COCA COLA...MARK REGISTERED / REGISTERED DESIGN 4039” (Figure 24c). Coca Cola was imported into NZ from 1939 and made locally from 1944 and painted letters instead of embossed was introduced in 1955 but there was an overlap with the embossed text until 1965 (https://sha.org/bottle/pdffiles/BLockhart_FHGW.pdf; <https://teara.govt.nz/en/food-and-beverage-manufacturing/page-7>). This bottle had “5AC39 / NZ” on the base so presumably dates between 1944 and 1965.

Only a small selection of toiletries were found. One small perfume bottle and a white glass Pond’s cold cream jar represent personal care on the site (Figure 24h). The Pond’s jar is probably early-to-mid 20th century in date.

The pharmaceutical bottles were identified based on their size, shape and finish type. They were all small to medium sized and aside from a cobalt blue poison bottle, all were clear. Several had identifying text embossed on the body or base, including: “BAXTER’S / LUNG PRESERVER / CHRISTCHURCH” which was made by Christchurch chemist John Baxter from late 1860s and is still available today (<https://www.nzmuseums.co.nz/collections/3102/objects/996800/bottle-baxters-lung-preserver>) (Figure 24n); “B.W. & CO / TABLOID” from around 1920 which contained laxative pills and was manufactured by Burroughs & Wellcome, wholesale pharmacists in London from 1890. (<http://blog.wellcomelibrary.org/2011/06/the-lost-world-of-snow-hill/>) (Figure 24i); “KP LIFE SALT” was advertised in New Zealand newspapers between 1925 (*Southland Times*, 6 November 1925: 10) and 1933 (*Evening Post*, 2 December 1933:6) (Figure 24i); “ODO-RO-NO” was an American deodorant available from 1909 onwards (*Wairarapa Age*, 23 February 1920: 1) to at least 1970 (*Press*, 23 February 1971: 15) (Figure 24g); and “Q-TOL” was a skin emollient advertised for shaving and helping with dry skin and advertised in NZ papers from 1919 (*Wanganui Chronicle*, 8 July 1919: 9) to 1963 (*Press*, 20 November 1963: 32) (Figure 24j). Several bottle manufacturers were also able to be identified, including: “MADE IN / 2 NZ A.G.M” made by Australian Glass Manufacturers from 1916–1923; flat-topped “A” with “G” and “M” inside from 1934 to today; “B&B[T?] / T” lozenge with “O” inside / “2” made by Owens-Illinois Glass Co. from 1929–c. 1960; “KILNER BROS./ MAKER / LONDON” from 1873–1937, but likely dates from pre-1910 due to being a Codd bottle (Figure 24a); “T...W. Co / U.S.A..” made by T.C. Wheaton Co. from 1938–1970; and “G 903 / C 15 / UGP” made by United Glass Products Co. from 1921–1960. Together this information suggests that a range of both locally produced and imported pharmaceutical products or bottles were utilised.

Bricks and pipes

There were 21 bricks sampled from Features 1 and 7, in assorted sizes, colours and quality. These were the only two features that were noted to have bricks with identifiable makers marks from site R11/3376 and therefore included in this analysis. Some had the manufacturer’s name on them and rectangular frogs top and bottom, but many were plain, without frogs at all. The colours ranged from traditional red, through oranges to pale yellow and creamy white (Figure 25d). Some had a fine, homogenous matrix, crisp edges and moulded text, others were poorly mixed (Figure 25i) with large inclusions and voids and were crumbling, with sloppy edges and moulding (Figure 25j). Most showed marks across the top from dragging and some also had cutting marks on the ends. One brick was moulded with a 45 degree double-sided point at one end (Figure 25e). There were two types of mortar represented on the bricks, one was a very coarse grey with large shell inclusions (Figure 25j) and the other



Figure 24. Bottles from Carrington Early Works. a, unidentified aerated water bottle; b, unidentified bottle; c, Coca-Cola bottle; d, Codd patent bottle finish; e, Case Gin bottle finish; f, Champagne style ring seal finish; g, ODO-RO-NO bottle and base; h, PONDS bottle and base; i, KP LIFE SALT bottle and base; j, O-TOL bottle and base; k, assorted pharmacy style bottles; l, B.W. & CO TABLOID bottle; m, pharmacy bottle; n, BAXTER'S LUNG PRESERVER bottle.

was a finer dark brown (Figure 25a). There were three pipes, one salt glazed with a diameter of c. 395 mm and two others with a diameter of 200 mm. The three sections of drainage pipe were marked "CARDER B.../PONSON.../...ORLA" and "ARCHIBALD BROS/AVONDALE."

The dates for the bricks and pipes echo both the ceramics and glass, falling across the turn of last century, and there are six manufacturers represented:

- W. HUNT AUCKLAND (1882–1887) (Figure 25h). Founded by William Hunt in 1882 and reported to have that had “the machinery to turn out about 16,000 compressed bricks per diem” (*New Zealand Herald*, 2 February 1884: 1 (Supplement)). Much of the machinery had apparently been imported from England. It was an extensive works with a railway siding and an internal tramway. Hunt seems to have been unable to repay his mortgage to biscuit maker Bycrofts and in 1887 the business was taken over by Bycrofts and run as the Avondale Patent Brick Works until 1896 (<https://timespanner.blogspot.com/2008/09/glenburn-avondales-fire-on-clay-1882.html>).
- J. J. CRAIG / AUCKLAND(1896–1900) (Figure 25e, f). Joseph Craig bought the ‘Avondale’s Patent Brick Works’ from J. Bycroft & Co. in 1896. It had initially been established by William Hunt in 1882. Under Craig the works produced a wide range of items such as jars, flower pots, glazed pipes, chimney pots and tea pots, as well as bricks, and took prizes at the Auckland Exhibition (*Auckland Star*, 15 February 1899: 5). Craig sold or leased the works to William Elliot and the Avondale Brick and Pottery Company Limited in 1900, although the works and land reverted to the Craig family in 1910 (<https://timespanner.blogspot.com/2008/09/glenburn-avondales-fire-on-clay-1882.html>).
- AVONDALE BRICK & POTTERY CO LTD. (1900–1910) (Figure 25 a-b). Purchased Craig’s works in 1900 and went into liquidation in 1910 (<https://timespanner.blogspot.com/2008/09/glenburn-avondales-fire-on-clay-1882.html>).
- ARCHIBALD BROS/ AVONDALE (1909–1929). Opened by the sons of James Archibald in 1909, on a promontory known as Dr. Aitken’s on the opposite side of the Whau and downstream from their father’s brickyard that had opened in 1870. All sizes of glazed pipes were produced (<https://timespanner.blogspot.com/2009/01/archibald-bros-of-aickins-point.html>).
- CARDER (1863–1927) (Figure 25c and k). Carder Brothers were based in Hobsonville from 1863, and Ponsonby (1879—at least 1924). “Messrs. Carder Brothers have lately established themselves as potters, pipe and tile manufacturers, in Pompallier Street, Ponsonby, and although their works are at present incomplete, they have on hand a considerable quantity of manufactured goods, and are in a position to supply almost any size that may be required, and in any quantity” (*New Zealand Herald*, 24 April 1879: 5). They were last mentioned in newspapers 1924 (*New Zealand Herald*, 2 September 1924: 10).
- DOLPHIN & Co / ARCHHILL (c.1897-1902) (Figure 25g). First in papers July 1897 advertising for a “Plastick Brick Machine” (*Press*, 24 July 1897:1). In 1901 a house they were leasing burned down (*Auckland Star*, 13 July 1901:1) and in 1902 the business was advertised for sale or lease “...as a going concern” (*Auckland Star*, 18 January 1902: 3).

With the W. Hunt, J.J. Craig and Avondale Brick and Pottery Co. bricks all being from the same Avondale works it’s hard to say whether they represent building phases or just a mix of bricks from an odd job lot. Hunt sold the pottery in 1887 but as the Avondale Patent Brick Works advertised that they were the manufacturers of “Hunt’s Celebrated Building Bricks” it seems quite possible they still used the W. Hunt mark. If W. Hunt was used until 1896 then the span of time the three names represent could be only four or five years. The Carder brick may have been produced at the old works in Hobsonville or at the newer one in Ponsonby (from 1897), and the pipe section has Ponsonby in the maker’s mark on it so will date from 1897 to possibly mid-1920s.



Figure 25. Bricks and Pipe from Carrington Early Works. a-b, AVONDALE BRICK AND POTTERY CO LTD brick; c, CARDER BROTHERS brick; d, unidentified white brick; e, J.J. CRAIG AUCKLAND brick with moulded 45° point; f, J.J. CRAIG AUCKLAND; g, A. DOLPHIN & CO ARCHHILL brick; h, W. HUNT AUCKLAND brick; brick cross section showing poor mixing of clay; j, brick showing poor cohesion of clay matrix; k, CARDER BROTHERS PONSONBY AUCKLAND glazed pipe.

Discussion

Two archaeological sites were identified during earthworks associated with the Stormwater 06 Outfall works as part of the early works programme for the Carrington Housing Development. Site R11/3313 is connected to late 18th or early 19th century pre-European Māori occupation along the banks of Te Auaunga Creek and has evidence of an open settlement or camp with several fire features, associated rake out from these and an area of midden. The site had originally been recorded as an area of midden, possibly redeposited, identified within a test pit during an assessment of effects for these works (Ussher 2021). Site R11/3376 is composed of a range of brick and stone features connected with the historic 19th and early 20th century occupation and farming of the Carrington Psychiatric Hospital grounds.

R11/3313

The five features comprising this site are all indicative of an open settlement or camp on the flat above Te Auaunga Creek. Similar sites have been recorded from surface evidence within the surrounding area (at least 22 pit and terrace and/or midden sites are recorded within 1 km of the entrance to Te Auaunga Creek), but this is one of only a small number to be archaeologically investigated and appears to have been occupied much later than other sites, in the 19th century.

Druskovich (2015) sampled midden from site R11/524, recorded around 50 m to the north of the Stormwater 06 Outfall works. The site was originally recorded by Gardiner and Sullivan in 1975 as shell midden and two possible pits at the top of the slopes above the creek. Several subsequent site visits by Sewell in 1981 and Druskovich in 2003 could not relocate the pits due to heavy grass growth. The two samples of midden were reported to be predominantly tuangi supplemented by titiko and smaller quantities of other species (2015: 26). These results are very similar to those from site R11/3313 and suggest that similar approaches and environments were utilised for the harvesting of shellfish. A sample of the tuangi was dated to the mid-15th to mid-17th centuries. A small amount of charcoal was also extracted from these midden samples and analysed. The range of species present was broadly similar to that from site R11/3313, however one notable difference was the higher percentages of broad-leaved trees and conifers such as pūriri and mataī (2015: 32). It was acknowledged that “...the assemblage was too small to base any secure environmental reconstructions upon but seems to be a diverse mixture of shrubs and tree species.” Due to the proximity of these two sites, it was initially thought these could be inter-related however the dates show that R11/3313 was occupied much later.

Around 200 m south of R11/3313, midden from R11/1387 was exposed during works for the Waterview shared path (Farley et al. 2017b). The site was originally recorded by Fredericksen (1987) as several possible pits and terraces, and a shell scatter in an open area near the Wairaka spring. The sampled midden was primarily tuangi with sparse gastropods. A sample of the tuangi was sent for C14 dating and provided a range of around the early 16th to 17th centuries.

At the mouth of Te Auaunga Creek, Farley and Clough (2016) and Farley et al. (2017a) investigated five areas of R11/2203, an open settlement site with terraces and pits, and midden R11/2459, R11/2862 (later proven to not be archaeological) and R11/2914 as part of the SH16 Upgrade works and Waterview Connection Project–Great North Road Interchange. Midden from three of the areas of R11/2203 and each of the other sites were sampled and analysed. It was noted that most of the deposits were primarily composed of soil or rock, with much smaller proportions of shell, which likely indicates redeposition of the shell within the site. The range and proportions of species broadly reflected that from sites R11/524 and R11/3313, with the addition of small numbers of Chiton sp., large wedge shell (*Macomona Liliiana*), turret shell (*Maoricolpus roseus*), scallop (*Pecten novaezelandiae*) and limpets (Nacellidae) that would also likely have been available within the muddy estuarine environment neighbouring the sites (Farley and Clough 2016:61–71; Farley et al. 2017a: 64–76). Very little collection from other environmental niches was thought to have occurred. Very small amounts of charcoal were analysed from R11/2203 after both projects, as well as R11/2914. These were dominated by shrubs such as manuka, hebe and mahoe, supplemented by small amounts of kauri. The absence of broadleaf species was noted, suggesting a slightly different surrounding environment or preferential use of these species, compared with that described at sites R11/524 and R11/3313 further upstream. Tuangi was radiocarbon dated and suggested a clear band of activity around the 16th and 17th centuries, with occupation possibly continuing into the 19th century (Farley and Clough 2016: 76; Farley et al. 2017a:79).

In light of these data, although based on a small sample of excavated features, it would appear that R11/3313 fits in the general pattern of seasonal or short-term occupation along Te Auaunga Creek, and indicates the continuation of this type of occupation of the area into the early 19th century.

R11/3376

To date, the investigation of site R11/3376 is the first to record features other than dry-stone walls connected with the occupation of the hospital buildings and surrounding farm. The brick and stone features represent the development of infrastructure for drainage and accessways to Te Auaunga Creek. Despite extensive archival research, there are no available plans showing any of these features. Aerial photography from 1930 and 1940 confirms the presence of a small number of features at this time. A basic chronology of construction can be surmised based on this information, the makers marks on the bricks and ceramic pipes, alignments of the various trenches and features, and their relationships with one another stratigraphically.

There were seven features uncovered during the works that were recorded as site R11/3376. Of these three were constructed from brick, two were from stone and two others were glazed ceramic pipework. The oldest of these features appears to be the brick drain (Feature 1) that ran from the south-eastern edge of the stormwater swale along the full extent of works on the flat, terminating at the top of the slope above Te Auaunga Creek. Based on its alignment, this likely was constructed as a drain from either the old asylum farm road or the nearby farm buildings. Research into the makers marks on these bricks suggest that drain was likely constructed sometime between 1880–1900. A slightly later timeframe of 1890–1900 can also be inferred for the brick paved driveway / road (Feature 7) as the same range of bricks aside from addition of the Carder Bros brick, were used within this feature. It is important to note that only W. Hunt's bricks were identified in the extent of the brick drain (Feature 1) west of the manhole, while the eastern extent had bricks from J.J. Craig, Avondale Brick and Pottery Co., and Dolphin and Co. This may indicate that these two sections of the drain were constructed at different times.

The brick driveway or road (Feature 7) is visible in aerial photography from 1930 and 1940, along with some sort of small building close to the banks of the creek on the eastern side, near this track. In imagery from 1930 the drive is a lot clearer than in 1940, suggesting that it may no longer be in use and is grassed over. The orientation of the driveway seems to connect the asylum farm road with a track that crossed Te Auaunga Creek at bridge site R11/2373 onto the western side of the property near Great North Road. It likely also enabled access to the banks above the creek to dump rubbish from the hospital and associated farm from the late 19th to mid-20th century, indicated by the analysis of artefactual material from these layers. If this is correct, the kerbstones recorded as Feature 6 are likely the edge of the old asylum farm road where it connected to Feature 7. The kerbstones are constructed over the cut for the brick drain (Feature 1) and so post-date this feature.

The stone-lined drain (Feature 8) had a fragment of salt-glazed ceramic pipe from Carder Bros, Ponsonby, dated to 1897 to the 1920s, in the upper layers of fill of the trench. The trench was orientated from the general direction of the asylum farm road towards Te Auaunga Creek but was truncated by a ceramic pipe (Feature 9) and the sump (Feature 5). Considering that the sump was constructed around the ceramic pipes of Features 9 and 10, these were all almost certainly later additions to the drainage system. There were no bricks with makers marks in the sump (Feature 5) this also suggests that this feature was constructed at a different stage to Features 1 and 7.

Based on all of the above information, a basic chronology of site R11/3376 is hypothesised as:

- Brick drain: 1880–1900
- Brick road / drive and kerbstones: 1890–1900
- Stone-lined drain: 1879–1920 onwards
- Ceramic pipes and sump: 1910 onwards
- Dumping of material on hillside above Te Auaunga Creek: late 1800s–mid-1900s.

It is interesting to note that the range of material culture analysed from both the recorded features and the rubbish bearing deposits connected to the demolition of the asylum piggery farm buildings and earlier rubbish removal from the hospital, had both domestic and medical items. Some of the domestic items were unexpected within the hospital setting. These included items such as moulded vases, toiletries including perfume, and alcohol or soda bottles. These items are more likely connected with the staff who worked at the hospital and on the grounds of the farm. The farm manager lived with his family in the house now recorded as site R11/3331, and attendants/nurses as well as the superintendent had always lived on the grounds or, from the 1930s, at Penman House.

Several other sites connected with the Carrington Psychiatric Hospital have been investigated previously and provide some context, albeit on a smaller scale, to the features recorded as site R11/3376. Druskovich (2009) monitored earthworks for a bridge replacement on the Oakley Creek Walkway in the vicinity of recorded site R11/2205 to the south of the Stormwater 06 Outfall works. The site was recorded as two drystone walls that likely acted as a race for a previous bridge that crossed Te Auaunga Creek, and a historic midden (later thought to have been from the demolition of the asylum farm buildings. During the aforementioned works, Druskovich recorded what was interpreted as a subsurface brick footing, however the full extent of the feature was not exposed.

Later Farley et al. (2017b) monitored works for the construction of the Alford Street bridge section of the Waterview shared path, around 200 m south of the Stormwater 06 Outfall works. An archaeological authority had been applied for the asylum piggery complex R11/2983 but no in situ features or deposits connected with the use of the piggery were identified. However, a broadly similar stratigraphy was recorded in the pits for the bridge piles to that observed on the banks of Te Auaunga Creek in the current works. Two distinct layers were represented, being a deposit of mixed clay and silt with gravel and building materials above another deposit of charcoal, ash and many broken or burned ceramics, glass and metal objects. The upper most layer is likely connected to the demolition of the farm buildings in the 1960s, while the lower deposit is the result of dumping rubbish from the hospital and farm from the late 19th to the mid-20th century. The depth of these deposits does vary between the two areas of works but nevertheless indicates that these events heavily changed the surrounding landscape.

Conclusion

Earthworks associated with the Stormwater 06 Outfall works as part of the early works programme for the Carrington Housing Development were monitored under HNZPT authority 2021/777 issued to the Ministry of Housing and Urban Development. During these works a number of pre-European Māori archaeological features were recorded, connected to previously recorded site R11/3313, representing evidence of an open settlement along the banks of Te Auaunga Creek in the late 18th to early 19th century. Additionally, several historic features including brick and stone-lined drains, a sump, road and several drainage pipes were subsequently recorded as site R11/3376. This latter site is connected to the occupation and farming of the Carrington Psychiatric Hospital grounds.

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